

What is claimed is:

- 1     1.     A resonant circuit structure comprising:  
2             a load;  
3             a primary component coupled to a node;  
4             a secondary component array coupled to the node, in parallel to the primary  
5     component; and  
6             a reduction system, intercoupled between the load and the node, and adapted to  
7     reduce to operational voltage at the node to a target value.
- 1     2.     The structure of claim 1, wherein the resonant circuit structure comprises an inductive  
2     load and a capacitance coupled in series.
- 1     3.     The structure of claim 1, wherein the load comprises an antenna.
- 1     4.     The structure of claim 1, wherein the primary component comprises a capacitive  
2     element.
- 1     5.     The structure of claim 4, wherein the capacitive element is a capacitor.
- 1     6.     The structure of claim 4, wherein the secondary component array comprises a  
2     capacitive element.
- 1     7.     The structure of claim 6, wherein the capacitive element is a capacitor.

1 8. The structure of claim 6, wherein the secondary component array comprises a  
2 switchable element.

1 9. The structure of claim 8, wherein the switchable element is a transistor.

1 10. A circuitry segment, implementing an RLC resonant circuit structure utilizing  
2 integrated and discrete devices, the circuitry segment comprising:

3 a driver circuit, instantiated within a first integrated semiconductor device;

4 a primary resistive element, having a first terminal coupled the driver circuit, and a  
5 second terminal coupled to a first terminal of an inductive load;

6 a reduction system, having a first terminal coupled to a second terminal of the  
7 inductive load, and having a second terminal coupled to a node;

8 a primary capacitive element, having a first terminal coupled to the node; and

9 a secondary component array coupled to the node, in parallel to the primary  
10 capacitive element;

11 wherein the reduction system is adapted to reduce to operational voltage at the node  
12 to a target value.

1 11. The circuitry segment of claim 10, wherein the RLC resonant circuit structure is a  
2 low frequency resonant circuit.

1 12. The circuitry segment of claim 10, wherein the RLC resonant circuit structure is a  
2 radio frequency resonant circuit.

1 13. The circuitry segment of claim 10, wherein the primary resistive element is a resistor.

- 1    14.    The circuitry segment of claim 13, wherein the resistor is a discrete component.
- 1    15.    The circuitry segment of claim 10, wherein the inductive load is an antenna.
- 1    16.    The circuitry segment of claim 15, wherein the antenna is for a base transceiver in a  
2    wireless communication system.
- 1    17.    The circuitry segment of claim 10, wherein the primary capacitive element comprises  
2    a capacitor.
- 1    18.    The circuitry segment of claim 10, wherein the primary capacitive element comprises  
2    a plurality of capacitors.
- 1    19.    The circuitry segment of claim 17, wherein the capacitor is a discrete component.
- 1    20.    The circuitry segment of claim 17, wherein the capacitor is integrated within a  
2    semiconductor device.
- 1    21.    The circuitry segment of claim 10, wherein the secondary component array comprises  
2    a capacitor.
- 1    22.    The circuitry segment of claim 10, wherein the secondary component array comprises  
2    a switchable element.
- 1    23.    The circuitry segment of claim 22, wherein the switchable element comprises a  
2    transistor.
- 1    24.    The circuitry segment of claim 21, wherein the capacitor is a discrete component.

1    25.    The circuitry segment of claim 21, wherein the capacitor is integrated within a  
2    semiconductor device.

1    26.    The circuitry segment of claim 23, wherein the transistor is integrated within a  
2    semiconductor device.

1    27.    The circuitry segment of claim 10, wherein the reduction system comprises a  
2    capacitor.

1    28.    The circuitry segment of claim 10, wherein the reduction system comprises a plurality  
2    of capacitors.

1    29.    The circuitry segment of claim 27, wherein the capacitor is a discrete component.

1    30.    The circuitry segment of claim 27, wherein the capacitor is integrated within a  
2    semiconductor device.

1    31.    A method of producing a tunable resonant circuit, having integrated and discrete  
2    devices, the method comprising the steps of:

3            providing a driver circuit instantiated within a first integrated semiconductor device;

4            providing a primary resistor, having a first terminal coupled the driver circuit, and a  
5    second terminal coupled to a first terminal of an inductive load;

6            providing a primary capacitor, having a first terminal coupled to a node;

7            providing a secondary capacitor having a first terminal coupled to the node;

8            providing a transistor having a first terminal coupled to a second terminal of the

9 secondary capacitor, and a second terminal coupled to ground; and  
10 providing a reduction system, having one or more intercoupled capacitors, a first  
11 terminal of which is coupled to a second terminal of the inductive load, and a second  
12 terminal of which coupled to the node, adapted to reduce to operational voltage at the node to  
13 a target value.

1 32. The method of claim 31, wherein the step of providing a transistor further comprises  
2 providing a transistor instantiated within an integrated semiconductor device.

1 33. The method of claim 32, wherein the step of providing a transistor further comprises  
2 providing a transistor instantiated within the first integrated semiconductor device.

1 34. The method of claim 31, wherein the step of providing a secondary capacitor further  
2 comprises providing a secondary capacitor instantiated within an integrated semiconductor  
3 device.

1 35. The method of claim 34, wherein the step of providing a secondary capacitor further  
2 comprises providing a secondary capacitor instantiated within the first integrated  
3 semiconductor device.